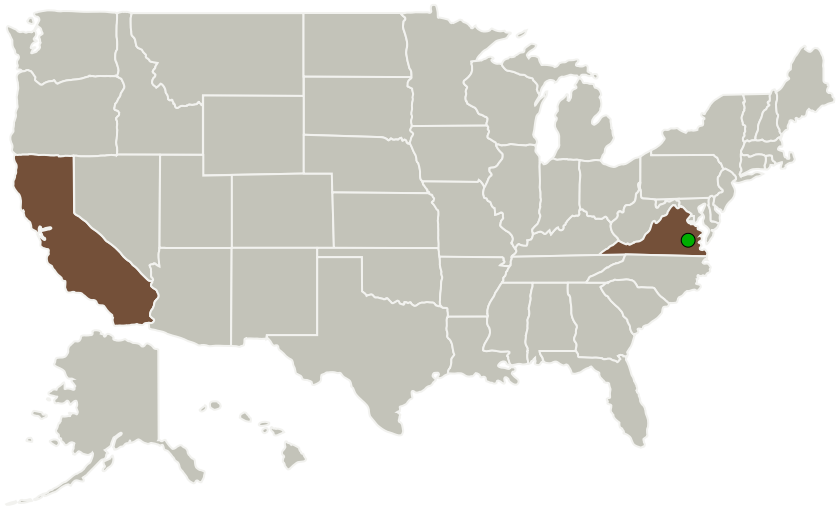
# Automated Radiation Measurements for Aviation Safety (ARMAS), Phase II

Completed Technology Project (2012 - 2015)

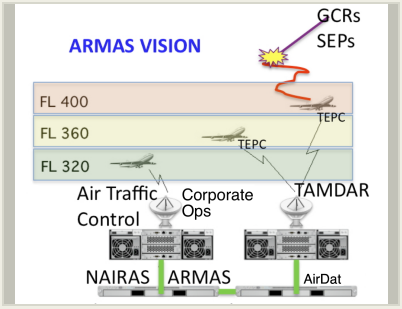
## Project Introduction

The existing state-of-the-art for physics-based, data-driven, climatological specification of the global radiation environment is the capability embodied by Nowcast of Atmospheric Ionizing Radiation for Aviation Safety (NAIRAS) and supported by the validation activity in the Automated Radiation Measurements for Aviation Safety (ARMAS) project Phase I. In Phase II the ARMAS team will: i) integrate, fly, and operate two micro dosimeters on aircraft; ii) validate and calibrate the micro dosimeters with a tissue equivalent proportional counter; iii) retrieve the micro dosimeter dose and dose rate data in real-time via an automated downlink system; iv) use the dose and dose rate measurements in a data assimilation algorithm to correct the NAIRAS model dose and dose rate output along the flight track; and v) report the corrected dose and dose rate via server, web, Google Earth, and smart phone apps for aviation safety.

## Primary U.S. Work Locations and Key Partners



| Organizations Performing Work | Role | Type | Location |
|---|---|---|---|
| Space Environment Technologies, LLC | Lead Organization | Industry | Pacific Palisades, California |
| Langley Research Center(LaRC) | Supporting Organization | NASA Center | Hampton, Virginia |




Automated Radiation Measurements for Aviation Safety (ARMAS) Project Image

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| Primary U.S. Work Locations | |
|---|---|
| California | Virginia |

## Project Transitions

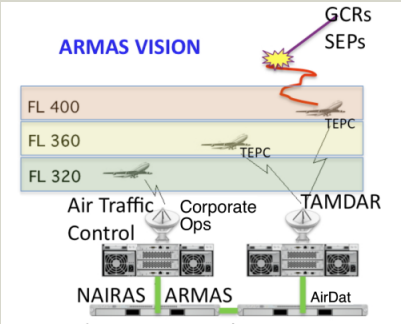
**April 2012:** Project Start

**April 2015:** Closed out

**Closeout Documentation:**

- Final Summary Chart*(https://techport.nasa.gov/file/137383)*

## Images




**Project Image**
Automated Radiation Measurements for Aviation Safety (ARMAS) Project Image *(https://techport.nasa.gov/image/130643)*

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Space Environment Technologies, LLC

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

William K Tobiska

**Co-Investigator:**

W. Kent Tobiska

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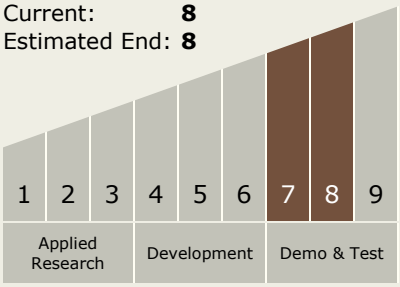
## Technology Maturity (TRL)

Start: **7**
Current: **8**
Estimated End: **8**




## Technology Areas

**Primary:**

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System